



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,047	10/21/2003	Koji Sasaki	SON-2829	3405

23353 7590 07/26/2005

RADER FISHMAN & GRAUER PLLC  
LION BUILDING  
1233 20TH STREET N.W., SUITE 501  
WASHINGTON, DC 20036

EXAMINER

ZERVIGON, RUDY

ART UNIT PAPER NUMBER

1763

DATE MAILED: 07/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/689,047

Applicant(s)

SASAKI ET AL.

Examiner

Rudy Zervigon

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 recites "smaller opening spaces". Smaller than what?
3. Claim 2 recites the limitation "smaller opening spaces". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 4, 5, and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Dhindsa; Rajinder et al (USPat. 6,245,192). Dhindsa teaches a thin-film deposition device (Figures 2,3; column 4, lines 9-60) comprising: a vacuum chamber ("plasma reactor"; Figure 2; column 3, lines 64-67); a substrate holder (not labelled; Figure 3) provided in the vacuum chamber ("plasma reactor"; Figure 2; column 3, lines 64-67); and at least one tubular gas supply end (22, Figures 2,3; column 4, lines 9-60) that supplies gas towards a substrate mounting-face on the substrate holder (not labelled; Figure 3), wherein the gas supply end (22, Figures 2,3; column 4, lines 9-60) includes therein barriers (30A-C, Figures 2,3; column 4, lines 9-60) that

Art Unit: 1763

control the gas flow in the gas supply end (22, Figures 2,3; column 4, lines 9-60) and that are disposed at predetermined intervals toward a gas supply port (26, Figures 2; column 4, lines 9-60) of the gas supply end (22, Figures 2,3; column 4, lines 9-60), each of the barriers (30A-C, Figures 2,3; column 4, lines 9-60) having a plurality of apertures (52A-C, Figures 2; column 4, lines 9-60), as claimed by claim 1

Dhindsa further teaches:

- i. The thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 1, wherein the gas supply end (22, Figures 2,3; column 4, lines 9-60) is connected with a plurality of gas supply tubes (40,44, Figures 3) that introduce gas into the gas supply end (22, Figures 2,3; column 4, lines 9-60), as claimed by claim 4
- ii. The thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 1, wherein the gas supply end (22, Figures 2,3; column 4, lines 9-60) has a structure such that gas is supplied in a collimated fashion to a long rectangular area on the substrate mounting-face across the width thereof, as claimed by claim 5 – Applicant's claim requirement of "a structure such that gas is supplied in a collimated fashion to a long rectangular area on the substrate mounting-face across the width thereof" is a claim requirement of intended use of the pending apparatus claims. It is well established that apparatus claims must be structurally distinguished from the prior art (In re Danley, 120 USPQ 528, 531 (CCPA 1959). "Apparatus claims cover what a device is, not what a device does ." (emphasis in original) Hewlett - Packard Co . v. Bausch & Lomb Inc ., 15 USPQ2d 1525, 1528 (Fed. Cir. 1990), MPEP – 2114). Further, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be

Art Unit: 1763

employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. *Exparte Masham*, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

- iii. The thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 1, wherein the gas supply end (22, Figures 2,3; column 4, lines 9-60) has a structure such that gas is supplied to the entire surface of a substrate mounted on the substrate mounting-face, as claimed by claim 7.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa; Rajinder et al (USPat. 6,245,192) in view of Umotoy; Salvador et al. (US 6,079,356 A). Dhindsa is discussed above. Dhindsa does not teach Dhindsa's thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 1, wherein Dhindsa's barriers (30A-C, Figures 2,3; column 4, lines 9-60) that are disposed closer to Dhindsa's gas supply port (26, Figures 2; column 4, lines 9-60) have a larger number of apertures (52A-C, Figures 2; column 4, lines 9-60) each having smaller opening spaces.

Umotoy teaches a deposition apparatus (Figure 8, 5; column 10; lines 10-65) including an aperture distribution “N(r)” on Umotoy's showerhead 120 (column 7, line 64 – column 8, line 21).

Art Unit: 1763

It would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize Dhindsa's number and distribution of Dhindsa's apertures (52A-C, Figures 2; column 4, lines 9-60) as taught by Umotoy (column 14, lines 57-61).

8. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa; Rajinder et al (USPat. 6,245,192) in view of Rudolph; James W. et al. (US 5,853,485 A). Dhindsa is discussed above. Dhindsa does not teach Dhindsa's thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 1, wherein said at least one tubular gas supply end (22, Figures 2,3; column 4, lines 9-60) comprises a plurality of gas supply ends.

Rudolph teaches plural gas supply ends (458; Figure 15) for a deposition apparatus (400; Figure 15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to reproduce Dhindsa's tubular gas supply end (22, Figures 2,3; column 4, lines 9-60) into plural gas supply ends as taught by Rudolph.

Motivation to reproduce Dhindsa's tubular gas supply end (22, Figures 2,3; column 4, lines 9-60) into plural gas supply ends as taught by Rudolph is for increasing production of processed wafers. Further, it is well established that the duplication of parts is obvious (In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960) MPEP 2144.04).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dhindsa; Rajinder et al (USPat. 6,245,192) in view of Hayashi; Shigenori et al. (US 5,578,130 A). Dhindsa is discussed above. Dhindsa does not teach Dhindsa's thin-film deposition device (Figures 2,3; column 4, lines 9-60) according to claim 5, wherein Dhindsa's substrate holder (not labelled;

Art Unit: 1763

Figure 3) includes a sliding mechanism that moves the substrate mounting-face parallel to the short axis of the long rectangular area to which the gas is supplied.

Hayashi teaches a deposition apparatus (Figure 1; column 7, line 66 – column 8, line 44) including a substrate holder capable of catessian movements (column 5; lines 60-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace Dhindsa's substrate holder (not labelled; Figure 3) with Hayashi substrate holder.

Motivation to replace Dhindsa's substrate holder (not labelled; Figure 3) with Hayashi substrate holder is for controlling the contour of coatings as taught by Hayashi (column 5; lines 60-64).

### *Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (571) 272.1442. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official fax phone number for the 1763 art unit is (703) 872-9306. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (571) 272-1700. If the examiner can not be reached please contact the examiner's supervisor, Parviz Hassanzadeh, at (571) 272-1435.

*Rudy Zervigon*  
7/25/5